EVALUATING QUALITY CIRCLES IN HOSPITAL FOODSERVICE

by

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INTRODUCTION

Quality circles have been described as the management tool of the '80s. Several thousand circles now exist in the United States and the number continues to grow. Quality circles were introduced into the foodservice industry in 1980 and have been increasing in number.

The need for quality circles in the foodservice industry has grown from the need for improved quality. Today's consumers, as well as managers, are developing a quality consciousness. The Joint Commission on Accreditation of Hospitals (1) sets standards for the quality of all professional services. The quality of professional care is evaluated and less than optimal care is to be improved.

How well are quality circles doing in hospital foodservice? How do foodservice personnel perceive quality circles? Questions about the use of quality circles in foodservices need to be answered. Evaluation of quality circles in hospital foodservices could not be found in the literature.

The purpose of this research was to evaluate quality circles in hospital foodservice and to provide information to assist foodservice personnel in the implementation or use of quality circles. The objectives of this study were to:

- describe characteristics of quality circles in hospital foodservice;

- identify techniques used in foodservice quality circles; and

- compare attitudes about quality circles among members, non-members, and management.

REVIEW OF LITERATURE

The quality circle concept has developed from the participative management school of thought. This approach to management was guided by McGregor's Theory Y (2).

Theory Y

Theory Y is a people oriented philosophy of management based on the premise that people have the capacity to direct their behavior toward organizational goals. Douglas McGregor (2), who believed that the basic motivating force in a person comes from within, proposed Theory Y in 1960. The Theory Y manager uses decentralization of authority, a democratic leadership style, and emphasizes participative decision making. He creates opportunities, releases potential, removes organizational obstacles, encourages growth, and provides guidance.

Participative Management

The beginning of participative management came from Theory Y. Participative management stresses active involvement of people using their expertise and creativity in solving important managerial problems. The concept is based on shared authority which states that managers share their managerial authority with subordinates (3,4,5). Participative management is a process by which workers are brought into organizational decision-making processes in varying degrees, primarily on matters which directly affect them (4,6).

Participative management is a product of the human relations movement in management theory and has grown as a result of studies conducted in the 1960s which demonstrated that the more input workers have about what they do and how they do the work, the more productive they will be. The goal of participative management is to increase the organization's output, while simultaneously meeting the need of individual employees. The participative management approach appears to be effective in small organizations where subordinates are skilled professionals, and also works well in situations where organizations are in a state of change. Workers find change easier to accept if they have helped define their new working conditions (3,5,6).

Participative management is based on studies completed at the University of Michigan's Survey Research Center in 1969. The advantages of participative management include: subordinate input can improve the quality of decisions, participative management leads to acceptance of and commitment to organizational goals, and participation promotes teamwork within the organization. The disadvantages of participative management are: time needed to have the many meetings required may be extensive, conflict and antagonism between workers and managers may develop, and confusion of roles may result (4,5). According to Chandler and Plano (6), communication is the key issue involved when a manager decides to allow subordinates to participate in decision making. People must be aware of the degree to which they will be participating in management decisions as well as their role in the total organization environment. Without effective communication, participative management practices will not achieve their goals, which is to allow workers to become mentally and emotionally involved in their job (4,5,6).

Participative management can have a dramatic effect in improving productivity and morale and in reducing waste and absences. Participation seems to work well in all types of organizations with all types of workers. Participative management will make the organization more efficient and effective (5).

Theory Z

William Ouchi (7) introduced the Theory Z organization. Theory Z is based on the Japanese-style concepts of long-term employment and participatory decision-making but retains individual responsibility for performance. Theory Z uses such concepts as slow evaluation and promotion, rotation of managers to avoid extreme specialization, consensus decisions, and informal controls. Ouchi studied several successful companies including Kodak, Proctor & Gamble, International Business Machines, and Hewlett-Packard and demonstrated how they exhibit definite "Z" tendencies (8).

American companies that display features strongly resembling Japanese firms are called Type Z companies (7). American managers are strengthening the management of their human resources and organizational environments with areas of strength from the Japanese organizations. On the other hand, Rehder (9) believed the Japanese need to increase their speed in decision making as well as improve their management innovation and risk-taking skills, traditionally areas of strength in American organizations.

The Type Z organization uses parts of American and Japanese organization and management systems. While American workers would not wish to adopt the highly paternalistic Japanese organization and management systems, many seek a work organization which provides a greater degree of

job security, social cohesiveness, and wholistic concern for employees.
Organizations with mixed American-Japanese characteristics operating in
the United States include such leading firms as International Business
Machines, Sony, Honeywell, Kodak, Kyoto Ceramic Company, Proctor & Gamble,
Honda, Hewlett-Packard and American Telephone and Telegraph (9).

Contion and Lorusso (10) stated that organizations changing from
traditional American to Type Z management must transform the organization
from a majority of decision-making authority emanating from one person, to
a Theory Z organization, where most decisions are based upon qualitative
input from the entire spectrum of the organization's members, both labor
and management. Theory Z management is most effectively used in an
organization with problems such as labor mistrust, poor productivity, poor
quality of work, or high turnover. The application of Theory Z seeks to
tap a previously unused resource within the organization: the skill and
experience of all the employees.

Egalitarianism is a central feature of Type Z organizations.
Egalitarianism implies that each person can apply discretion and can work
autonomously without close supervision, because they are to be trusted.
Trust underscores the belief that goals correspond and that neither
person is out to harm the other. This feature, perhaps more than any
other, accounts for the high levels of commitment, loyalty, and productiv-
ity in Japanese firms and in Type Z organizations (7).

Quality Circles in Japan

The beginning of the quality circle movement is credited to the
Japanese who, after World War II, sought methods and systems to improve
product quality. Japanese industry was in ruins, shortages were

everywhere, but the most severe problem was the lack of trained individuals who understood the control of quality. Before the war, Japan had produced primarily cheap trinkets for export. The Japanese government made a decision to drop their emphasis on products of low price and poor quality and to concentrate on high quality products (7,11,12).

In their search to improve product quality, the Japanese sought help from many experts. Dr. W.E. Deming, one of the foremost leaders in statistical quality control, was consulted in the 1950s. His approach so impressed the Japanese that he was invited back to Japan to lecture to middle and upper level management about the different methods and systems that could be used to improve product quality (7,11).

Many of the techniques proposed by Dr. Deming were too advanced for the Japanese to implement at the time; a simpler version was needed. The Japanese heard of the work American social scientists were doing on motivation; many of these concepts were introduced in 1962 to start the development of quality control circles, or what was later called quality circles (11,12).

As the result of the development of quality circles, today Japanese products are at the top of the quality ladder and the productivity of Japanese workers is among the highest in the world. Their products have taken over markets once dominated by American industries and the Japanese give much of the credit for this achievement to the implementation of quality circles (7,11).

In Japan circles have been adapted in many areas of business and industry: manufacturing, banking, education, clerical, and retail. More than eight million Japanese workers are members of quality circles and the concept's growth continues (11).

Development of Quality Circles in America

Pioneering companies of quality circles in this country include
Lockheed Missiles and Space Company, Metaframe Corporation, Smith Kline
Instruments, and the United States Envelope Company. Companies that later
incorporated quality circles included Harley Davidson, American Airlines,
Babcock and Wilcox, Cordis-Dow, General Motors, Honeywell, Hughes Aircraft,
Martin-Marietta, Minnesota Mining and Mineral, and Westinghouse Electric
(13).

Wayne Rieker, manufacturing manager of Lockheed, was introduced to
quality circle techniques by a group of visiting Japanese in 1973. After
in-depth study, a quality circle program at Lockheed was launched in
October, 1974. Since 1974, the quality circle movement in the United
States has developed and expanded in scope and depth (14). In 1984,
several thousand American companies report the use of quality circles (13).
Two organizations, the American Society of Quality Circles (ASQC) and the
International Association of Quality Circles (IAQC), have done much to
advance the state of quality circles through publications, training and
development activities, and the exchange of practical knowledge (14).

Purpose of Quality Circles

The quality circle concept is designed to give the worker a voice in
deciding how the work shall be done. Circles do this by giving the worker
authority to suggest changes in procedures and materials. Once management
agrees such changes will be beneficial, responsibility for executing the
suggested changes falls on the employees. Employees who have a voice in
determining the content of the job and the job's manner of performance are
motivated to achieve excellence (11).

According to Stenberg (15) the objectives of quality circles are to enhance the quality of goods and services produced by circle members, solve work-related problems, develop a closer identification with the goals of the organization, and improve communication between management and workers.

Patchin (16) believed quality circles spark the cooperation of many American workers and gives them a sense of personal involvement in their jobs. Workers participate in decision-making and work with management to resolve problems. Also parties respond favorably to an atmosphere of cooperation and among the results reported are noticeable reductions in absenteeism, grievances, and job hopping.

A sense of commitment to one another, as well as to the organizations, is reported as a result of quality circles by Berger (17). The concept of quality circles maximizes creative thinking and a personal sense of participation. Quality circles are designed to bring decision making closer to the worker who is responsible for job performance.

Description of Quality Circles

Quality circles are small groups of workers who meet on a regular basis to identify, analyze, and solve problems they experience in their jobs (18). Besides immediate problems, circle members also work on problem prevention and productivity improvement (19). Quality circles range in size from three to 25 members but ten or less are most effective. Members are generally from the same work area so they are familiar with problems identified by the group (18). Workers serve as "in-house" consultants on how to improve conditions and results. Each member of the

team has the opportunity to make suggestions or contribute at each meeting (15,20).

Membership is strictly voluntary. No one is required to participate nor is anyone denied the right to participate, if they wish. The number of quality circles in a given area varies. Most quality circles meet for an hour each week on company time (18,21).

A variety of problem solving techniques may be used for analysis of problems in quality circles. The most common procedures include brain-storming, Pareto analysis, graphs, and sampling (7,21) Techniques used in quality circles identified in the literature are defined briefly in the glossary, Appendix A.

A quality circle is composed of four interrelated parts: the members, the circle leader, the facilitator, and the steering committee (18,21). Members receive training during the first meetings of the circle. Leader training takes approximately three days. Facilitators normally receive at least four or five days of training. The facilitator trains the circle leader and acts as a support unit. The supervisor is most often the circle leader (21).

The steering committee is comprised of managers, top executives, the facilitator, and a union representative if applicable. Functions of the steering committee are to formulate the overall objectives, draw up the implementation plan, and determine the rate of expansion (19,22).

Members participate in quality circles by using the following steps to solve a problem:

1. identify a number of problems,

2. select the problem with the highest priority,

3. collect data,

4. analyze the problem using problem solving techniques,

5. select a recommended solution, and

6. present to management (21).

Training for quality circle implementation should not be short-cut or reduced. Proper training of circles is important and commercial programs are available. Proper training of workers for circle is vital for success of the quality circle (15,23).

According to O'Donnell and O'Donnell (14), management style and management commitment are the most important determinants of quality circles usage and effectiveness. Results suggest that the management style has an important influence on the effectiveness of quality circle utilization and that a style which is both production and people centered is more supportive of quality circle success than is a production centered only style. Middle managers need to learn not only the basics of quality circles process and techniques, but also how to positively reinforce participative behavior in their supervisors and circle leaders (14,16,20).

Advantages of Using Quality Circles

Yager (24) reported that typically, the first quality circle will be operating within a few weeks after implementation begins and will cost between $8,000 to $15,000 to launch when an outside consultant is used. More circles are added internally with little extra cost. A payback or breakeven point of three to five months on the initial investment in time and training can be expected. Some consultants claim a six-to-one payback for the first full year of quality circle installation (25).

The benefits of circles fall into three broad categories: better quality, improvement of attitudes and behaviors of people at all levels

of the organization, and measurable savings from circle projects.
Desirable features identified by circle members, listed by Gryna (13),
included:

- discussing and solving problems as a team,

- using quality circle techniques to solve problems and present
  their solutions,

- getting engineers interested in their problems and working
  with them,

- expressing themselves freely,

- influencing decisions about their work,

- recognition, and

- reducing conflicts in the work environment.

Quality circle members become highly motivated and involved. Within
a matter of months, circles contribute to improved quality and cost
reduction within the organization (26).

In <u>Megatrends</u> (27), author John Naisbitt stated there will be a shift
from a representative to a participatory democracy on the job front in
favor of the networking approach which will include more quality circles,
workers' rights, and participatory management. He indicated that quality
circles are an important part of the network shift because communication
and decision making occur bottom up from a network of fellow workers.
Quality circles is a philosophy of management that assumes employees can
creatively contribute to solving operational problems and also meets
peoples' need for a sense of belonging to the organization.

Barra (28) believed that quality circles are the most effective way
of establishing the participatory style of management. According to Gadon
(29), quality circles are team building. He stated that people will
respond creatively, productively, and with satisfaction to situations

identified in quality circles and that quality circles will ultimately change the culture of an organization.

Muczyk and Hastings (30) believed that the contemporary worker possesses different values, attitudes, needs, and expectations than his or her forebears. Consequently, the modern worker needs to be managed differently from previous generations of workers. If the employer expects greater loyalty and commitment from the workers, then the employer must reciprocate. Quality circles, being a participative type of management, meets the needs of the new type of worker and challenges him or her to get involved in their work. Also, quality circles help to improve morale and this results in happier workers (31).

Problems Associated with Quality Circles

When quality circles are to be introduced in a union situation, the union needs to be part of the installment process or the circle may be seen as an attempt to weaken the union. If management tries to implement circles without union support, the union will find many ways to sabotage the circles. For quality circles to succeed, union leaders have to believe that management really means what management says about worker participation in quality improvement (32,33).

According to Metz (34) about one-third of the quality circles established in the United States will be effective. Going slowly and not expecting instant results are necessary conditions to avoid faddishness and to promote the type of organization culture necessary for circle success (7).

Management support at all levels is needed to keep quality circles functioning and alive (35). Lack of middle management support is probably

the greatest of all pitfalls in an evolving quality circle program. A large number of middle managers often remain either indifferent or hostile to quality circles (36).

According to Peters and Waterman (37), quality circles are only the latest in a long line of tools that can either be very helpful, or can simply serve as a smoke-screen while management continues to get away with not doing its job of real people involvement. Managing with quality circles will require changes in attitudes and interaction of staff. Managers must be ready for change and be willing to let workers participate in work related problem solving (38).

Five principal problem areas are identified by Berger (17) in which quality circles fail to develop into successful programs. Problem areas may include lack of middle management support, poor communications, unrealistic expectations, conflict with other programs, and excessive transfer and turnover.

Quality circles are said to be a poor forerunner for more participative approaches to management. Managers who seriously want to adopt a participative philosophy and style of management may want to avoid using quality circles as a first step because the transition is difficult to make (39).

Quality Circles in the Service Sector

Jenkins and Shimada (40) believed that the absence of quality circles in service industries in the past has been due to a lack of quality consciousness rather than any limitations in service industries to implement circles. Today's consumers, as well as managers, are developing a quality consciousness.

The service sector of the American economy is the fastest growing segment in terms of new jobs and new companies. Quality circles are a relatively new tool for the healthcare industry. Some hospitals that set up quality circle programs earlier have assisted other hospitals in implementing similar programs (41-48).

Don Dewar, President of the Quality Circle Institute, believes that quality circles can be effective in the service industries and that the initially low penetration of the service industry by the concept was because of the lack of quality control managers in the industry. Now within the service sector, circles work on issues designed to improve the value of the product, efficiency of delivery, and cost (11).

In hospitals, benefits of quality circles are harder to measure than in industry. Savings-to-cost ratio for quality circle programs, in general, average more than 5 to 1 (49). Lippe (46) reported a return of $4 to $6 on every dollar spent on quality circles in the healthcare industry. Although quality circles may save a hospital money, consultants stress that the real goal is to improve the quality of work and employee morale by making them part of the management process (49).

Quality Circles in the Foodservice Industry

Assessment of Quality

In the Webster's Third New International Dictionary (50), quality is defined as a characteristic, property, or attribute; character with respect to excellence, fineness, or high grade; superior excellence. In relating quality to food, Unklesbay et al. (51) indicated that the number of microorganisms is commonly taken as an indicator of the quality of the food.

Quality of meals is a primary objective of hospital foodservice systems. Bobeng and David (52) defined quality as an overall characteristic encompassing microbiological, nutritional, and sensory attributes of food. According to Kragt (53), quality is a peculiar and essential character of a product. It has distinctive essential characteristics or properties and a degree of excellence. Leonard and Sasser (54) pointed out that in foodservices efforts to raise quality almost always result in heightened productivity and the reverse also holds true; effort to raise productivity usually improves quality.

Thorner and Manning (55) stated that quality control or assurance is an activity, procedure, method, or program that will ensure the maintenance and continuity of specifications and standards of a product within prescribed tolerances during all stages of handling, processing, preparation, and packaging. Quality control will further ensure that the original and desirable characteristics are sustained during storage, processing, or preparation and will remain unaltered until consumed.

Foodservice personnel need methods to evaluate aspects of foodservice operations that influence quality. According to Allington et al. (56), methods for evaluating the quality of meals prepared and served in a foodservice consist of ten characteristics under three major categories: first, food preparation which includes food appearance, flavor, texture, and temperature; second, foodservice which includes meal appearance, meal accuracy, and meal delivery or service; and third, sanitation and safety which includes equipment, kitchen areas, and foodservice personnel. Quality of meals is evaluated by a process consisting of rating each characteristic according to predefined criteria.

Quality assurance is defined by Snyder (57) as a program organized and administered by practitioners and designed to certify continuously optimal quality and cost effectiveness. He explains that quality control measures the effectiveness and efficiency of quality assurance as it compares actual operating performance to the quality assurance standards. Evaluation will be followed by appropriate corrective action whenever less than optimal care is identified. Change is effected through feedback of the results of the evaluation to the entire professional staff and by educational programs with a positive incentive rather than by punitive programs with a negative incentive.

Quality assurance, according to Adamow (58), involves assessment and evaluation of the foodservice to improve outcomes. The major tools for monitoring quality assurance are audits, peer review, and self-assessment. The responsibility of a foodservice to serve safe food makes the use of quality assurance essential. A quality assurance program must consist of two basic components. One is the securing of measurements, and the ascertaining of the degree to which stated standards are met. The second is the introduction of changes based on information supplied by the measurements. These changes are made with a view to improvement of the total effort and the product of the foodservice in which the quality assurance program was generated.

For a quality program to have a real chance of success, according to Leonard and Sasser (54), the program must have top management support. Top management must be openly and actively committed to improving quality as a necessity. The proper size of the quality program, the program's place in the organization, the breadth of the program's mission, and the nature of the program's role in the process are all issues that a general

manager has to confront. To produce significant results, efforts to improve quality require an enormous and sustained investment of energy and resources.

Application of Quality Circles in the Foodservice Industry

Foodservice positions are associated with low performance, poor attitudes, and high absenteeism. Quality circles challenge and stimulate the workers in their jobs by encouraging them to use higher-level skills to solve non-routine problems. The nature of the quality problems pursued by circles typically go beyond the narrow scope of any particular job, and employees in circles tend to see their role as more meaningful than the mindless repetition of a specialized function. Because the circle is a decision-making and policy-forming unit, participants also feel a greater sense of autonomy. These attitudes are reinforced by feedback from customers and management, and by improved group performance (40).

Quality circles are appearing across the country in foodservices in hospitals, schools, colleges, business, and industry (59) and were introduced into hospital foodservices in 1980. Programs were started at Mount Sinai Medical Center of Greater Miami, Miami Beach, Florida (41) followed by Henry Ford Hospital, Detroit, Michigan (42); Barnes Hospital, St. Louis, Missouri (43); Memorial Hospital, Chattanooga, Tennessee (44); Bellen Memorial Hospital, Green Bay, Wisconsin (47); and St. Agnes Hospital, Fond du Lac, Wisconsin (47). In the bulletin developed for quality circle implementation at Barnes Hospital (45), it stated that "the anatomy of quality begins with people." The philosophy emphasized in the bulletin is that the purpose of quality circles in the foodservice industry is for employees to become involved in their work and the stress

is on quality. The idea is to improve both food quality and worker performance.

Faulkner (60) stated that because the nature of the foodservice business does make participative management difficult, the foodservice industry has been slow to attempt quality circles. But quality circles can make a significant contribution to foodservice operations. Throughout the industry, quality circles are being tested. Some firms have hired consultants to implement the circles while others are attempting to set up circles without help.

The advantages of quality circles in the foodservice industry include teamwork atmosphere, job satisfaction, improvement in quality, improvement in productivity, and better communication (47). Faulkner (60) believes that quality circles can make a significant contribution to a foodservice operation if four conditions are met: proper training, attitude adjustment, data gathering, and management support.

Treadwell and Klein (61) identified the benefits of quality circles in foodservice to be improved quality and appearance of food served, improved employee satisfaction and morale, cost savings, and increased productivity. Quality circles may also develop managerial ability of circle leaders and identify talented employees who can move up the career ladder (61,62).

METHODOLOGY

The Study Sample

Foodservice departments in two acute care hospitals where the quality circle concept had been implemented in the vicinity of Manhattan, Kansas, were identified. Hospital A, a 753-bed facility, had used quality circles for approximately two and one-half years while hospital B, a 416-bed facility, had incorporated the concept for over one year.

Foodservice administrators were contacted to obtain approval for the study and to determine number of employees in the department and their involvement with quality circles. Administrators were asked to help with the project by informing employees of the study and assisting with some of the data collection.

Preliminary Instrument

The preliminary research instrument, based on objectives defined for the study, consisted of surveys for quality circle members, non-members, and management (Appendix B). Statements about quality circles were developed with a Likert-type rating scale to assess attitudes of foodservice personnel toward the circles. No type of evaluation of quality circles by personnel was found in the literature.

Pretest of the instrument was conducted at Barnes Hospital, St. Louis, Missouri, where foodservice quality circles had been recently discontinued. Arrangements were made by telephone with the quality control director and copies of three draft surveys with instructions were mailed to the director. Each of the surveys was evaluated by the respective

type of foodservice personnel for content, clarity, and appropriate reading level.

Revisions were made to clarify the wording of some of the statements and to ensure understandability by all levels of personnel. Approximately equal number of positive and negative statements were included on each survey.

Final Instrument

Arrangements for conducting the research were made with foodservice administrators at each hospital. The final communication consisted of a cover letter, a page of demographic information, and a survey instrument for each of the three groups (Appendix B). The cover letter on official letterhead of the Department of Dietetics, Restaurant, and Institutional Management and addressed to the foodservice personnel, consisted of a brief explanation of the study, a request for participation, and instructions for completing the instrument. Demographic information, requested on the first page of the survey instrument, consisted of gender, age, educational level, length of employment, and job title. Concise instructions for completing the survey and the rating scale were given above the statements. The same rating scale was used for all three surveys.

           1 = definitely yes
           2 = probably yes
           3 = maybe or neutral
           4 = probably no
           5 = definitely no

The survey instrument contained 20 statements for quality circle members, 13 for non-members, and 15 for management. In addition, members were asked to check on a list of techniques those that had been used. Also, the members were asked to identify problems they had working in

quality circles. Finally, all respondents were asked to make any addi-
tional comments about quality circles.

Distribution of the Instrument

The researcher made arrangements with the foodservice administrators
at each facility to attend a meeting with quality circle members to explain
the study and to distribute the instruments. A dietitian and supervisor
were assigned to assist with the distribution and collection of surveys for
all shifts including evening and weekend. On the day selected, all com-
pleted surveys were collected. The researcher returned within a week to
collect any additional completed surveys. Instruments not available at
that time were mailed within a week after the last visit. Names of indi-
viduals were not requested and confidentiality was assured. Background
information about each of the circles was collected from the administrator
using interview questions (Appendix B).

Data Analyses

In order to have the statements on the same scale of 1 to 5, with 1
being most positive, negatively framed statements were reverse coded.
Responses for statements that were reverse coded on the surveys for
members were 2, 4, 5, 8, 10, 13, 17, and 19; for non-members 4, 6, 8, 9,
and 11; and for management 2, 4, 6, 8, and 15.

Programs and routines from the Statistical Analysis Systems (SAS)
were used for data analyses (63). Absolute and relative frequencies were
compiled for all statements and demographic information on the research
instrument. Mean scores were computed. From the members' instrument,

techniques used and problems encountered were calculated on a percentage basis.

The t-test was used to assess significant differences on how the three groups of personnel at the two locations perceived the statements. Correlation coefficients were calculated to indicate relationships between responses to statements and demographic factors of age, education, and length of employment.

Six statements on the three instruments were similar in content and were compared. Analysis of variance was used to compare each group for significant differences from the other two groups by group, location, or group/location. Probability values determined the level of significance and a negative or positive value was indicated.

RESULTS AND DISCUSSION

Demographic Information

Demographic information about respondents were divided into five categories: gender, age, education level, employment length, and job title. Descriptive data about the sample are compiled in Table 1.

Respondents were primarily females between the ages of 20 to 39. Educational level of circle members was divided evenly between high school or less and some college and a bachelor's degree, whereas education of non-members of a circle at both hospitals was primarily at the high school or vocational school level. Most management personnel at both hospitals had completed some college with over half having received a bachelor's degree. Two to ten years was the most frequently reported length of employment at both hospitals. The most common job titles were supervisor and dietary technician.

General Information

A total of 98 individuals completed the research instrument. Information concerning distribution and return of the instruments is shown in Table 2. Sixteen (100%) of the members of the two quality circles completed the instrument. Circle members included both foodservice workers and management personnel. Management personnel was defined as individuals with responsibility for directing others. Sixty-four (75%) non-members of quality circles and 18 (100%) of management completed the survey.

Table 1. Characteristics of sample

category	hospital					
	A			B		
	circle member N = 8	non-member N = 38	manage-ment N = 10	circle member N = 8	non-member N = 26	manage-ment N = 8
	$\xleftarrow{\hspace{4cm}}$ % $\xrightarrow{\hspace{4cm}}$					
sex						
female	88	95	80	88	58	87
male	12	5	20	12	42	13
age						
16-19	-	-	-	-	8	-
20-29	50	21	60	38	58	38
30-39	12	34	20	38	11	25
40-49	-	21	10	24	19	12
50-59	38	11	-	-	4	-
60 and over	-	13	10	-	-	25
education						
no high school diploma	25	5	-	-	12	-
high school diploma	-	42	10	25	48	50
vocational school	25	16	-	25	16	-
some college	38	24	40	-	24	12
bachelor's degree	12	13	20	50	-	38
master's degree	-	-	30	-	-	-
employment length						
less than a yr	-	3	-	-	20	-
1-2 yr	12	5	-	-	8	-
2-5 yr	25	42	70	24	48	25
5-10 yr	38	21	10	38	20	38
10-20 yr	25	21	10	38	4	25
more than 20 yr	-	8	10	-	-	12
job title*						
baker	-	-	-	-	8	-
cafeteria worker	12	8	10	-	15	-
cook	-	8	-	-	8	-
dietetic technician	12	11	50	12	23	-

*Job titles on survey not selected by respondents were deleted.

Table 1. (cont.)

category	hospital					
	A			B		
	circle member N = 8	non-member N = 38	manage-ment N = 10	circle member N = 8	non-member N = 26	manage-ment N = 8
				%		
job title (cont.)						
dishroom worker	-	2	-	-	8	-
salad maker	12	11	-	-	4	-
storeroom worker	-	-	-	-	11	-
tray worker	12	26	-	-	15	-
supervisor	40	-	-	50	-	50
dietitian	12	-	20	26	-	38
other†	-	34	20	12	8	12

†Includes: administrative assistant, assistant director, cafeteria super-
visor, cashier, catering, catering manager, department director, dietary
clerk, food purchasing manager, lead dietary worker, nourishment prepara-
tion, and operations coordinator.

Table 2. Distribution and return of instruments in two hospitals

group	foodservice employees		instruments distributed		instruments returned			
			hospital					
	A	B	A	B	A	B	A	B
	←————————————— N —————————————→						%	%
circle member	9	8	8*	8	8	8	100	100
non-member	134+	84+	53	33	38	26	72	79
management	10	8	10	8	10	8	100	100
total	153	100	71	49	56	42	79	86

*One circle member was absent.

+Includes part-time personnel.

Background information was compiled about the quality circles
selected for the study. The quality circle at hospital A consisted of a
dietitian, a dietetic technician, two supervisors, a nourishment worker,
a cafeteria worker, and two tray line workers. At hospital B, members
included four dietitians and four food production supervisors.

Characteristics of each hospital's quality circle are summarized in
Table 3. The quality circle at hospital A is part of the education
department for the hospital, whereas the circle at hospital B operates
independently. Hospital B identifies their group as a "task force" but it
functions as a quality circle. Hospital A became interested in quality
circles when an engineer brought back the concept from a conference and
shared it with department administrators. Personnel in the foodservice
department became interested and decided to implement a quality circle.

Table 3: Background information about quality circles at two hospitals

factors	hospital	
	A	B
date first circle started	May 3, 1982	Dec. 20, 1983
number of circles in food-service department	1	1
number of members	9	8
meet on company time	yes	yes
frequency of meetings	weekly	monthly, or as needed
initial training of members	facilitator/leader	none
continuous training	workshops	none
minutes on file	yes	yes
cost savings calculated	yes	no
other circles in hospital	yes	yes

Hospital B developed the circle out of need to improve the quality of patient trays after receiving excessive complaints.

Quality Circle Techniques

The percentage of members in each of the hospitals indicating the use of the techniques listed in the quality circle member instrument is shown in Table 4. The most commonly used techniques were identified as cause-and-effect analysis, brainstorming, check sheets, creative thinking, documentation, reporting, and analysis of solutions. Cause-and-effect analysis with 100% use was reported at hospital A. Complete agreement for only this technique may indicate a lack of training about the procedures used in circles.

Table 4. Techniques used in quality circles at two hospitals*

techniques†	hospital	
	A N = 8	B N = 8
	←——— % ———→	
1. analysis of solutions	63	88
2. brainstorming	88	88
3. cause-and-effect analysis	100	13
4. check sheets	88	88
5. control charts	13	13
6. creative thinking	88	88
7. critical incident technique	13	-
8. data arrangement	88	13
9. documentation	88	88
10. force field analysis	-	-
11. graphs or histograms	38	-
12. how-how diagram	-	-
13. learning sampling	63	25
14. management presentations	25	50
15. multi-criteria decision making	13	25
16. nominal group techniques	38	-
17. Pareto analysis	-	-
18. reporting	75	88
19. scatter diagrams	-	-
20. stratification techniques	-	13
21. surveys or questionnaires	50	63
22. value analysis	25	63
23. why-why diagram	-	-

*Identified by members.

†Definitions, glossary, Appendix A.

Circle Projects

Focus of the quality circles at the two hospitals differed based on information collected using the interview instrument (Appendix B). Major projects were identified as solving patient tray problems including late trays, recipe formulation, availability of floor supplies, changes in diet orders, and use of the computer. Other areas of concern that have been improved using the quality circles were oven temperatures fluctuation, scheduling of employees, format for labels for special diets, menu changes, and service of isolation trays.

Reactions to Statements about Quality Circles by Participants

Members of Quality Circles

Members of quality circles were found to have positive (1 or 2 on the rating scale) opinions about circles as shown in Table 5. Reverse coding was used on some indicated statements to convert negatively framed responses to positive so statements would be comparable. Mean ratings were positive overall with the exception of two statements. For statement 5, respondents indicated that the primary purpose of quality circles was to improve productivity. According to Gryna (13), Stenberg (15), and Brody (49) improvement of quality is the principal objective of quality circles, although Ingle and Ingle (47) stated that improved productivity often accompanies the primary purpose. Leaders in the circles need to emphasize this fact to the members continuously. Responses for statement 17 indicated that management support may need to be increased, particularly at hospital A. All other statements were found to have positive responses with an overall mean rating of 1.87. Percentage of members'

Table 5. Mean ratings and standard deviations for member groups at two hospitals

statements	hospital					
	A*		B†		combined‡	
	recorded mean rating#	adjusted mean¶ s.d.	recorded mean rating#	adjusted mean¶ s.d.	mean s.d.	
1. personally satisfying	1.13	1.13 ±.35	1.88	1.88 ±.64	1.50 ±.63	
2. circles a fad	4.62	1.38 ±.52	3.37	1.63 ±.74	1.50 ±.63	
3. like to continue on circle	1.25	1.25 ±.46	1.50	1.50 ±.76	1.38 ±.62	
4. very little change resulted	4.62	1.38 ±.74	4.75	1.25 ±.71	1.31 ±.70	

*N ranged from 7 to 8.

†N = 8.

‡N ranged from 15 to 16.

#Rating scale:
  1. definitely yes
  2. probably yes
  3. maybe or neutral
  4. probably no
  5. definitely no

¶Negative responses were reverse coded to make ratings consistent.

Table 5. (cont.)

statements	hospital					combined
	A		B			
	recorded mean rating	adjusted mean s.d.	recorded mean rating	adjusted mean s.d.		mean s.d.
5. purpose to improve productivity	2.12	3.88 ±.99	2.00	4.00 ±1.41		3.94 ±1.18
6. new techniques learned	1.50	1.50 ±.76	1.88	1.88 ±.99		1.69 ±.87
7. enrich job	1.50	1.50 ±.76	1.75	1.75 ±.46		1.63 ±.62
8. non-members do not support	2.75	2.25 ±.89	2.75	2.25 ±1.28		2.25 ±1.06
9. job more challenging	1.75	1.75 ±.71	1.88	1.88 ±.64		1.81 ±.66
10. training limited	4.29	1.71 ±1.11	3.37	2.63 ±1.06		2.20 ±1.15
11. more productive foodservice	2.13	2.13 ±.83	2.50	2.50 ±1.20		2.31 ±1.01
12. add ideas	1.13	1.13 ±.35	1.75	1.75 ±.89		1.44 ±.73
13. quality not improved	4.37	1.63 ±1.19	4.75	1.25 ±.71		1.44 ±.96

Table 5. (cont.)

statements	hospital					
	A		B		combined	
	recorded mean rating	adjusted mean s.d.	recorded mean rating	adjusted mean s.d.	mean s.d.	
14. share ideas with non-members	2.13	2.13 ±.99	1.38	1.38 ±.52	1.75 ±.86	
15. extra hours not required	2.25	2.25 ±1.04	2.13	2.13 ±1.81	2.19 ±1.42	
16. all equals on circle	1.13	1.13 ±.35	1.00	1.00 ±.00	1.06 ±.25	
17. need more supportive management	2.87	3.13 ±1.64	3.37	2.63 ±1.41	2.88 ±1.50	
18. work at home on problems	1.62	1.62 ±.74	1.75	1.75 ±.71	1.69 ±.70	
19. function the same as before	4.62	1.38 ±.52	4.00	2.00 ±1.41	1.69 ±1.08	
20. like more circles formed	1.63	1.63 ±1.06	2.00	2.00 ±.76	1.81 ±.91	
mean	1.79		1.95		1.87	

responses for each statement may be found in Table 12 (Appendix C).
Overall, quality circle members from hospital A responded slightly more
positively to statements with a 1.79 mean, than hospital B, with a 1.95
mean.

Comments by members indicated that major problems may take months to
solve in the circle and change may be only temporary. Better communica-
tion about circles within the foodservice department was stated as a need.
One member commented that quality circles provided a means for self-
fulfillment and another stated that the department was more of a unified
whole because of quality circles.

Non-members of Quality Circles

Non-members were neutral to slightly positive in their responses to
statements about quality circles (Table 6). Non-members at hospital A were
more positive, with a 2.6 mean, than those at hospital B, with 3.08. The
larger standard deviations for non-members than members might indicate that
non-members lack specific knowledge about quality circles. Comments made
by non-members showed confusion about precisely what quality circles were.
Comments included "I don't know anything about quality circles," "What do
quality circles do?," and "I would like to know more about quality
circles." Comments indicated a need for more communication with non-
members. Percentages of non-member responses for each statement are
listed in Table 13 (Appendix C). From one-third to one-half of the non-
members surveyed at the hospitals reported desire to become circle
members. This would require the formation of additional circles so that
everyone who wishes may become a circle member.

Table 6. Mean ratings and standard deviations for non-member groups at two hospitals

statements	hospital					combined‡
	A*		B†			
	recorded mean rating#	adjusted mean¶ s.d.	recorded mean rating#	adjusted mean¶ s.d.		mean s.d.
1. like to be member	2.82	2.82 ±1.20	3.35	3.35 ±1.29		3.03 ±1.26
2. work life better	2.62	2.62 ±1.28	3.35	3.35 ±1.13		2.92 ±1.26
3. agree with circle idea	2.06	2.06 ±1.12	2.85	2.85 ±1.05		2.39 ±1.15
4. circles a fad	3.73	2.27 ±1.07	3.23	2.77 ±.82		2.48 ±1.00

*N ranged from 36 to 38.

†N ranged from 24 to 26.

‡N ranged from 62 to 64.

#Rating scale:
1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

¶Negative responses were reverse coded to make ratings consistent.

Table 6. Mean ratings and standard deviations for non-member groups at two hospitals

statements	A* recorded mean rating#	A* adjusted mean¶ s.d.	B† recorded mean rating#	B† adjusted mean¶ s.d.	combined‡ mean s.d.
1. like to be member	2.82	2.82 ±1.20	3.35	3.35 ±1.29	3.03 ±1.26
2. work life better	2.62	2.62 ±1.28	3.35	3.35 ±1.13	2.92 ±1.26
3. agree with circle idea	2.06	2.06 ±1.12	2.85	2.85 ±1.05	2.39 ±1.15
4. circles a fad	3.73	2.27 ±1.07	3.23	2.77 ±.82	2.48 ±1.00

*N ranged from 36 to 38.

†N ranged from 24 to 26.

‡N ranged from 62 to 64.

#Rating scale:
1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

¶Negative responses were reverse coded to make ratings consistent.

Table 6. (cont.)

statements	hospital				
	A		B		combined
	recorded mean rating	adjusted mean s.d.	recorded mean rating	adjusted mean s.d.	mean s.d.
5. asked for opinion	3.68	3.68 ±1.47	3.60	3.60 ±1.26	3.65 ±1.38
6. waste of time	3.82	2.18 ±1.27	3.50	2.50 ±1.10	2.31 ±1.21
7. want more circles formed	2.43	2.43 ±1.14	2.72	2.72 ±1.28	2.55 ±1.20
8. quality not improved	3.31	2.69 ±1.30	3.20	2.80 ±1.17	2.74 ±1.24
9. not well trained	3.63	2.37 ±1.02	3.12	2.88 ±.83	2.57 ±.98
10. morale improved	2.84	2.84 ±1.20	3.52	3.52 ±1.05	3.11 ±1.18
11. lack management support	3.97	2.03 ±1.09	2.12	2.88 ±1.01	2.37 ±1.13
12. solved problems	2.70	2.70 ±1.35	3.24	3.24 ±1.13	2.92 ±1.28
13. more of a team	2.73	2.73 ±1.30	3.48	3.48 ±1.29	3.03 ±1.34
mean	2.60		3.08		2.79

Management Personnel

Mean ratings for quality circles by non-member management personnel were neutral to slightly positive as shown in Table 7. Management personnel at hospital A was slightly more positive, with a 2.61 mean, than hospital B with a mean of 2.73. Percentages of responses by management for each statement are listed in Table 14 (Appendix C). Comments indicated appreciation of the positive aspects of circles as well as a need for better communication between members and non-members.

Relationships among Statements, Groups,
 and Demographic Factors

Comparison of statements for the three groups at two hospitals indicated there were significant differences (P < .05) for one member statement and seven non-member statements as shown in Table 8. Members of quality circles in the two hospitals made significantly different responses to the statement that circles were personally satisfying with hospital A rating this statement more positively than hospital B. Significant differences at the two hospitals were reflected in statements relating to improved work life, morale, and team spirit; support of the circle concept; perception of faddishness; and extent of training and management support. Again, ratings at hospital A were more positive than at hospital B.

Correlation coefficients were calculated to analyze relationships between statements and demographic factors for each of the three groups (Table 9). The most common demographic factor to influence responses was age; education level and employment length were influencing factors also.

Table 7. Mean ratings and standard deviations for non-member management groups at two hospitals

statements	hospital				combined‡
	A*		B†		
	recorded mean rating#	adjusted mean¶ s.d.	recorded mean rating#	adjusted mean¶ s.d.	mean s.d.
1. attitudes improved	2.50	2.50 ±1.50	3.00	3.00 ±1.07	2.72 ±1.32
2. not well trained	3.12	2.88 ±.99	3.25	2.75 ±1.16	2.81 ±1.05
3. works together as a team	2.13	2.13 ±1.46	2.63	2.63 ±1.06	2.83 ±1.26
4. quality not improved	3.50	2.50 ±1.51	2.87	3.13 ±.83	2.78 ±1.26

*N ranged from 8 to 10.

†N = 8.

‡N ranged from 16 to 18.

#Rating scale
1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

¶Negative responses were reverse coded to make ratings consistent.

Table 7. (cont.)

statements	hospital				
	A		B		combined
	recorded mean rating	adjusted mean s.d.	recorded mean rating	adjusted mean s.d.	mean s.d.
5. job satisfaction	2.90	2.90 ±.99	2.88	2.88 ±.99	2.89 ±.96
6. for looks only	4.00	2.00 ±1.50	3.75	2.25 ±1.49	2.12 ±1.45
7. all work together	2.67	2.67 ±1.41	2.50	2.50 ±1.31	2.59 ±1.33
8. lack management support	3.00	3.00 ±1.00	2.62	3.38 ±1.19	3.18 ±1.07
9. support participative management	2.00	2.00 ±1.73	1.38	1.38 ±.52	1.71 ±1.31
10. a management fad	3.20	3.20 ±1.62	3.63	3.63 ±.74	3.39 ±1.29
11. worker input	2.10	2.10 ±1.66	1.50	1.50 ±.53	1.83 ±1.29
12. management better at solving problems	3.50	3.50 ±1.35	3.38	3.38 ±.92	3.44 ±1.15

Table 7. (cont.)

statements	hospital					combined
	A		B			
	recorded mean rating	adjusted mean s.d.	recorded mean rating	adjusted mean s.d.		mean s.d.
13. job easier	2.50	2.50 ±1.43	2.75	2.75 ±.28		2.61 ±1.33
14. works well in foodservice	2.11	2.11 ±1.36	2.75	2.75 ±.89		2.41 ±1.18
15. no more circles formed	3.11	2.89 ±1.69	2.87	3.13 ±1.25		3.00 ±1.46
mean		2.61		2.73		2.67

Table 8. Comparison of statements* using a t-test to show significant differences between two hospitals (P < .05)

statement	P-value
member	
1. personally satisfying	.01
non-member	
2. work life better	.02
3. agree with circle idea	.006
4. circles are not a fad	.04
9. well trained	.04
10. morale improved	.02
11. management support	.003
13. more of a team	.03

*Hospital A rated all significant statements more positively than hospital B.

Table 9. Pearson's correlation coefficient for analysis of relationships between statements and demographic factors for three groups of personnel*

group		demographic factor	R	R^2	P-value
member					
5.	purpose not to improve productivity	age	-.52	.27	.04
8.	non-members do support	age	-.65	.42	.006
11.	more productive foodservice	age	-.52	.26	.04
18.	work at home on problems	age education	+.62 +.66	.38 .43	.01 .006
non-members					
3.	agree with circle idea	age employment	-.27 -.29	.07 .09	.03 .02
4.	circles not a fad	age employment	-.30 -.25	.09 .06	.02 .04
11.	management support	age	-.31	.10	.01
management					
3.	works together as a team	employment	+.70	.49	.003
6.	not for looks only	education	+.62	.39	.008
7.	all work together	age	+.66	.44	.004

*Significant factor P < .05.

A negative correlation existed between age and six of the ten statements indicating that older employees perceived circles more positively than younger ones. This was true for members and non-members of circles. For management personnel not involved with quality circles, younger individuals with less education and employed for shorter periods of time viewed quality circles positively in relation to teamwork and meaningfulness of circles.

Six statements on the three instruments were similar in content and were compared. The placement of the six similar statements on each survey is identified in Table 15 (Appendix C). Analysis of variance was used to assess relationships between the similar statements and group, hospital, or group/hospital (Table 10). Significant differences (P < .05) were found among the three groups for statements concerning whether or not

Table 10. Analysis of variance to illustrate effects between similar statements and group, hospital, or group/hospital at two hospitals

similar statements	group*	hospital	group/hospital
	← P-value →		
quality circles a fad	.0001+	.11	.90
form more quality circles	.02+	.32	.99
work life has changed	.0001+	.49	.25
quality improvement	.0006+	.68	.49
work together as a team	.18	.16	.48
trained adequately	.18	.09	.34

*Member, non-member, management.

+Significant factor P < .05.

circles are a fad, more should be formed, work life has changed, or quality has improved. No other differences were found.

Further analysis of the six similar statements identified differences for each group based on responses as shown in Table 11. When considering the statement regarding quality circles as a fad, responses from each group were significantly different from the other groups. This agrees with the findings based on mean scores where members indicated that circles were not a fad, non-members were more inclined to view them as a fad, and management believed that they may be a fad. Three of the statements concerning forming more circles, changes in work life, and quality of work were viewed as significantly different by members than non-members or management.

<div align="center">

Comments Concerning Effectiveness
of Quality Circles

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Comments from an administrator at hospital A indicated that the foodservice circle was the most effective circle in the hospital. According to an administrator at hospital B, the foodservice circle was working very effectively. Comments made by members contained both positive and negative opinions. Circles were said to unify the department, but better communication about circle activities was needed, especially for non-members of circles. Comments from non-members were rather negative with requests for more information about quality circles. Management had few written comments. Some management and non-member respondents commented that they could not respond to the survey because they were not involved and did not know enough about circle activities.

Table 11. Comparison of groups based on responses to similar statements
at two hospitals

group	LS mean*	
	quality circles are not a fad	
member	1.50	A
non-member	2.52	B
management	3.41	C
	form more quality circles	
member	1.81	A
non-member	2.58	B
management	3.01	B
	work life has changed	
member	1.31	A
non-member	2.98	B
management	2.89	B
	quality improvement	
member	1.44	A
non-member	2.75	B
management	2.81	B
	work together as a team	
non-member	3.10	A
management	2.63	A
	trained adequately	
member	2.17	A
non-member	2.62	A
management	2.81	A

*Means with the same letter are not significantly (P < .05) different.

At hospital A, 63% of circle members stated they had no major problems when working on a quality circle as compared to 50% at hospital B. However, two problems identified at both hospitals were the need for more training of the circle members and lack of fellow worker support for the circle projects.

SUMMARY

Although widely used in industry, quality circles are just beginning
to be incorporated into the service sector. Growth of quality circles in
hospital foodservice has been accelerated by a developing quality con-
sciousness by consumers.

The purpose of this study was to evaluate quality circles in hospital
foodservice and to provide information to assist foodservice personnel in
the implementation or use of circles. Attitudes toward circles by food-
service personnel were assessed.

The research instrument consisted of two sections: demographic infor-
mation and statements about quality circles to be rated on a Likert-type
scale. Lists of statements were developed for members of quality circles,
non-members, and management personnel. The instrument was pilot tested at
a hospital where quality circles in the foodservice had been used.

Arrangements for the research were made with foodservice administra-
tors at two hospitals where quality circles had been implemented for over
a year to two and one-half years. Ninety-eight foodservice personnel
completed one of three instruments.

Findings of the study indicated that those involved with quality
circles view them more positively than those who were not. Members of
quality circles found circles to be personally satisfying, allowed them
to feel a part of the foodservice, and wanted to continue as a circle
member. They believed that quality circles were not a fad. Non-members
were neutral to slightly positive in their view of quality circles but
reported a lack of knowledge about how circles function and the activities

of the circle. A need for improved communication and the opportunity to become involved in a quality circle were reported by non-members. Management personnel who were not involved with circles were neutral to slightly positive in their view of quality circles and tended to perceive them as a fad. Responses of personnel at all levels were more positive in their view of quality circles at the hospital where the circle had been established for two and one-half years than at the other hospital. Also, more extensive training of circle members and inclusion of a wider range of personnel at that hospital may have influenced their responses.

Lack of agreement of the identification of quality circle techniques illustrated a need for improved communication and training. More than half of the quality circle members reported no major problems but did cite lack of fellow worker support and not enough training as areas of concern. Age was found to correlate with responses to some statements, usually with a more positive response with greater age. Significant differences were found in the ways that non-members view circles in the two hospitals.

The results of this study showed that quality circles can be successful in hospital foodservice. Proper training and good communication are required for circle success. Not only members, but also non-members and management, must be informed. A large group of non-members indicated an interest in becoming circle members which would require the formation of additional circles. Stricter adherence to the guidelines set for quality circles would benefit the foodservices. Management support for the circle is essential. Comments from one administrator indicated that the foodservice quality circle was working very effectively and another administrator stated that the foodservice quality circle was the most effective circle in the hospital.

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APPENDIXES

APPENDIX A

Glossary of Quality Circle Techniques

Glossary of Quality Circle Techniques

Analysis of solutions: A set of techniques for choosing the most appropriate solution that includes consideration of both cost benefit and cost effectiveness.

Brainstorming: A technique in which a group meets to stimulate creative thinking and develop new ideas.

Cause-and-effect analysis (fish diagram): A chart that evaluates problems based on four typical categories: materials, methods, equipment, and human resources.

Check sheets. A list of points to ensure no items are forgotten.

Control chart: A chart that gives results of periodic sampling for an area of concern.

Creative thinking: Stimulates unusual and different ideas in attempt to solve problems.

Critical incident technique: A technique to develop written criteria based on observed effective and ineffective methods of performance.

Data arrangement: An attempt to organize data so the underlying information may be used to ascertain causes to problems.

Documentation: A short, clear, concise written report.

Force field analysis: Illustrates "resistance to change" forces by arrows that vary in length depending on the relative strength of the forces they represent.

Graph and histogram: A chart to display statistics on which observations are plotted.

How-how diagram or means-end-chain: A version of a fish diagram exploring the question "how."

Learning samples: A preliminary sample to learn where the problem is located.

Management presentation: Circle members report findings to management.

Multi-criteria decision making: Decision making using more than one criterion, e.g., cost and quality.

Nominal group techniques: An advanced brainstorming technique.

Pareto analysis: Diagram that illustrates the concept that 80 percent of something is caused by 20 percent of something else; identifies the insignificant many and the mighty few.

<u>Reporting</u>: Sharing with others in an oral or written report.

<u>Scatter diagrams</u>: Plotting of data on a chart so that relationships between a variable and a criterion become apparent.

<u>Stratification techniques</u>: To divide or sort data into related groups (layers) so that each group can be studied separately.

<u>Surveys or questionnaires</u>: Specific questions asked to obtain an overall perspective for an area of concern.

<u>Value analysis</u>: A technique to analyze a previously designed product that meets functional requirements at the required time and place and provides for essential quality at the lowest cost.

<u>Why-why diagram</u>: A version of a fish diagram exploring the question "why."

APPENDIX B

Draft Instrument, Correspondence, Final Instrument,

and Interview Questions

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements concerning quality circles. Read each statement and then circle a number to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1.	I find quality circles personally satisfying.	1	2	3	4	5
2.	Quality circles are just a fad in our department.	1	2	3	4	5
3.	I would like to continue to be in a quality circle.	1	2	3	4	5
4.	Very little has been changed or improved since the quality circle started.	1	2	3	4	5
5.	Quality circles are primarily to improve productivity.	1	2	3	4	5
6.	We are continuously taught new techniques to analyze work problems.	1	2	3	4	5
7.	Quality circles enrich my job environment and make it more fulfilling.	1	2	3	4	5
8.	Non-members of quality circles do not support our work.	1	2	3	4	5
9.	Quality circles make my job more challenging.	1	2	3	4	5
10.	Circle training of problem solving techniques is limited.	1	2	3	4	5
11.	The foodservice is more productive since quality circles were started.	1	2	3	4	5
12.	Quality circles allow me to contribute and make me feel more a part of the foodservice.	1	2	3	4	5
13.	Since quality circles were implemented, quality has not improved.	1	2	3	4	5
14.	I share ideas and results with fellow workers who are not in the quality circle.	1	2	3	4	5
15.	Extra hours are not required outside the circle meeting time to work on circle problems.	1	2	3	4	5
16.	We are all equals in the circle and can speak out freely.	1	2	3	4	5

Quality Circle Member

17. Management could be more supportive of the
    recommendations made by the circle.   1 2 3 4 5

18. I work on circle problems at home on my own time.   1 2 3 4 5

19. The department functions the same as before the
    start of quality circles.   1 2 3 4 5

20. I would like to see more circles formed.   1 2 3 4 5

Check all possible answers:

21. Which of the following techniques do you use in your quality circle?

    _____ (1) brainstorming
    _____ (2) Pareto analysis
    _____ (3) cause-and-effect analysis or fish diagrams
    _____ (4) graphs or histograms
    _____ (5) control charts
    _____ (6) stratification techniques
    _____ (7) learning sampling
    _____ (8) data arrangement or collection
    _____ (9) scatter diagrams
    _____(10) surveys or questionnaires
    _____(11) check sheets
    _____(12) reporting
    _____(13) management presentations
    _____(14) nominal group techniques
    _____(15) why-why diagram
    _____(16) how-how diagram or means-end-chain
    _____(17) force field analysis
    _____(18) value analysis for quality
    _____(19) critical incident technique
    _____(20) multi-criteria decision making
    _____(21) creative thinking
    _____(22) analysis of solutions
    _____(23) documentation
    _____(24) other, please specify: _____

22. What problems have you had working in a quality circle?

    _____ (1) No major problems.
    _____ (2) Lack of leadership.
    _____ (3) Need more training on how to use problem solving techniques.
    _____ (4) Lack management support.
    _____ (5) Lack fellow worker support.
    _____ (6) Other, please specify: _____

23. Please make any additional comments about quality circles.

Thank you for your help!!!!!

Non-member of a Quality Circle

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements concerning quality circles. Read each statement and then circle a number to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1. I would like to be a member of a quality circle.   1 2 3 4 5

2. Since quality circles were started, work has
    improved.   1 2 3 4 5

3. I agree with the quality circle idea.   1 2 3 4 5

4. Quality circles are just a fad and won't be
    around for long.   1 2 3 4 5

5. I am asked for my opinion or help with problems
    identified in circles.   1 2 3 4 5

6. Quality circles are a waste of time.   1 2 3 4 5

7. I would like to see more circles formed.   1 2 3 4 5

8. The quality of work here has not improved.   1 2 3 4 5

9. The quality circle group was not well trained
    for their task.   1 2 3 4 5

10. Morale and productivity have improved with the
    implementation of quality circles.   1 2 3 4 5

11. Quality circles will never succeed here because
    of lack of management support.   1 2 3 4 5

12. The department seems more of a team since quality
    circles started.   1 2 3 4 5

13. Please make any additional comments about quality circles.

Thank you for your help!!!!!

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements concerning quality circles. Read each statement and then circle a number to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1. Work attitudes have improved.   1 2 3 4 5

2. The quality circle group was not well trained for
   the task.   1 2 3 4 5

3. Everyone works together as a team on quality
   circles.   1 2 3 4 5

4. Work quality has not improved since the start of
   quality circles.   1 2 3 4 5

5. I feel more satisfied in my job since quality
   circles were started.   1 2 3 4 5

6. Quality circles are for "looks" only and do not
   accomplish anything.   1 2 3 4 5

7. Everyone works together to solve a problem.   1 2 3 4 5

8. Not all of management supports the quality circle
   concept.   1 2 3 4 5

9. I believe in participative management.   1 2 3 4 5

10. Quality circles are a management fad.   1 2 3 4 5

11. I like the idea of worker input through quality
    circles.   1 2 3 4 5

12. Management is better at solving work problems
    than the worker.   1 2 3 4 5

13. Quality circles make my job easier since everyone
    works together for the department.   1 2 3 4 5

14. Quality circles work well in this foodservice.   1 2 3 4 5

15. I would not like to see more circles formed.   1 2 3 4 5

16. Please make any additional comments about quality circles.

Thank you for your help!!!!!

(KSU Letterhead)

July 27, 1984

Mr. Thom Schamberger
Coordinator Quality Control
Barnes Department of Education and Training
4949 Barnes Hospital Plaza
St. Louis, Missouri 63110

Dear Mr. Schamberger:

Thank you for being willing to review my questionnaires on quality
circles in hospital foodservice. Enclosed you will find copies of
my questionnaires. There are three questionnaires: one for quality
circle members, one for non-members of quality circles, and one for
management personnel. The purpose of my research is to compare
attitudes among the three different groups and evaluate quality
circles in the foodservice environment.

In order to review the questionnaires, I would like for you and
several others in each of the three groups to look over the instrument
and make comments. Write your questions or suggestions on the
questionnaires. Enclosed are five copies of each questionnaire for
the three different classifications. Please consider these questions
as you and others read through the instrument:
  1. Are the directions clear and easy to follow?
  2. Are the questions and statements clear and understandable?
  3. Can you think of other questions or statements that should
      be included?
  4. Are the questionnaires too long?
  5. Do the questionnaires show bias?
  6. In general, does it make sense?
Please include any suggestions for improvement as I want to make this
a good questionnaire.

I need the questionnaires returned to me with the comments by
August 22. An addressed, stamped envelope is enclosed for your
convenience. If you would like a copy of the results of my research
when it is completed I would be glad to share it with you. If you
have any questions, please contact me.

Thanks for your time and help. It is greatly appreciated.

Sincerely,

Edith Jones

(KSU) Letterhead

Fall 1984

Dear Foodservice Personnel:

Quality circles are new to the foodservice industry. We are
conducting a study on hospital foodservice quality circles. This
study is the first of its kind and we need your help to complete
this survey on quality circles.

Your honest attitude toward quality circles is needed to make this
study of value. Please read the survey carefully and give us your
opinion.

Without you our study would not be possible. Your help is appre-
ciated and we thank you for completing this survey.

Sincerely,

Faith Roach, Ph.D., R.D.
Associate Professor

Edith Jones
Graduate Student

DEMOGRAPHIC INFORMATION

Please complete the following:

1. Sex:

    _____ (1) female
    _____ (2) male

2. Age:

    _____ (1) 16-19
    _____ (2) 20-29
    _____ (3) 30-39
    _____ (4) 40-49
    _____ (5) 50-59
    _____ (6) 60 and over

3. Education:

    _____ (1) less than high school diploma
    _____ (2) high school diploma
    _____ (3) vocational school
    _____ (4) some college
    _____ (5) bachelor's degree

4. Length of employment in this hospital foodservice:

    _____ (1) less than a year
    _____ (2) 1 to 2 years
    _____ (3) 2 to 5 years
    _____ (4) 5 to 10 years
    _____ (5) 10 to 20 years
    _____ (6) more than 20 years

5. Job title:

    _____ (1) baker
    _____ (2) baker's assistant or helper
    _____ (3) cafeteria worker or server
    _____ (4) cook
    _____ (5) cook's helper or assistant
    _____ (6) dessert cook
    _____ (7) dietetic technician or assistant
    _____ (8) dishroom worker
    _____ (9) pots and pans worker
    _____(10) salad maker
    _____(11) sandwich maker
    _____(12) short order or grill cook
    _____(13) storeroom or ingredient room worker
    _____(14) tray or galley worker
    _____(15) vegetable cook
    _____(16) other, please specify: _____

DEMOGRAPHIC INFORMATION

Please complete the following:

1. Sex:

    _____ (1) female
    _____ (2) male

2. Age:

    _____ (1) 16-19
    _____ (2) 20-29
    _____ (3) 30-39
    _____ (4) 40-49
    _____ (5) 50-59
    _____ (6) 60 and over

3. Education:

    _____ (1) less than high school diploma
    _____ (2) high school diploma
    _____ (3) vocational school
    _____ (4) some college
    _____ (5) bachelor's degree
    _____ (6) master's degree
    _____ (7) doctorate

4. Length of employment in this hospital foodservice:

    _____ (1) less than a year
    _____ (2) 1 to 2 years
    _____ (3) 2 to 5 years
    _____ (4) 5 to 10 years
    _____ (5) 10 to 20 years
    _____ (6) more than 20 years

5. Job title:

    _____ (1) supervisor
    _____ (2) management engineer
    _____ (3) dietitian
    _____ (4) other, please specify: _____

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements concerning quality circles. Read each statement and then circle a number to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1.	I find quality circles personally satisfying.	1	2	3	4	5
2.	Quality circles are just a fad in our department.	1	2	3	4	5
3.	I would like to continue to be in a quality circle.	1	2	3	4	5
4.	Very little has been changed or improved since the quality circle started.	1	2	3	4	5
5.	Quality circles are primarily to improve productivity.	1	2	3	4	5
6.	We continuously learn new techniques to solve work problems.	1	2	3	4	5
7.	Quality circles enrich my job environment and make it more fulfilling.	1	2	3	4	5
8.	Non-members of quality circles do not support our work.	1	2	3	4	5
9.	Quality circles make my job more challenging.	1	2	3	4	5
10.	Circle training of problem solving techniques is limited.	1	2	3	4	5
11.	The foodservice is more productive since quality circles were started.	1	2	3	4	5
12.	Quality circles allow me to add my ideas and feel more a part of the foodservice.	1	2	3	4	5
13.	Since quality circles were started, quality has not improved.	1	2	3	4	5
14.	I share ideas and results with fellow workers who are not in the quality circle.	1	2	3	4	5
15.	Extra hours are not required outside the circle meeting time to work on circle problems.	1	2	3	4	5
16.	We are all equals in the circle and can speak out freely.	1	2	3	4	5

17. Management could be more supportive of the
    suggestions made by the circle.   1 2 3 4 5

18. I work on circle problems at home on my own time. 1 2 3 4 5

19. The department functions the same as before the
    start of quality circles.   1 2 3 4 5

20. I would like to see more circles formed.   1 2 3 4 5

Check all possible answers:

21. Which of the following techniques do you use in your quality circle?

    _____ (1) brainstorming
    _____ (2) pareto analysis
    _____ (3) cause-and-effect analysis or fish diagrams
    _____ (4) graphs or histograms
    _____ (5) control charts
    _____ (6) stratification techniques
    _____ (7) learning sampling
    _____ (8) data arrangement or collection
    _____ (9) scatter diagrams
    _____ (10) surveys or questionnaires
    _____ (11) check sheets
    _____ (12) reporting
    _____ (13) management presentations
    _____ (14) nominal group techniques
    _____ (15) why-why diagram
    _____ (16) how-how diagram or means-end-chain
    _____ (17) force field analysis
    _____ (18) value analysis for quality
    _____ (19) critical incident technique
    _____ (20) multi-criteria decision making
    _____ (21) creative thinking
    _____ (22) analysis of solutions
    _____ (23) documentation
    _____ (24) other, please specify: _____

22. What problems have you had working in a quality circle?

    _____ (1) No major problems.
    _____ (2) Lack of leadership.
    _____ (3) Need more training on how to use problem solving techniques.
    _____ (4) Lack management support.
    _____ (5) Lack fellow worker support.
    _____ (6) Other, please specify: _____

Please make any additional comments about quality circles.

Thank you for your help!!!!!

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements concerning quality circles. Read each statement and then circle a number to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1. I would like to be a member of a quality circle.   1 2 3 4 5

2. Since quality circles were started, work life is
   better.   1 2 3 4 5

3. I agree with the quality circle idea.   1 2 3 4 5

4. Quality circles are just a fad and won't be around
   for long.   1 2 3 4 5

5. I am asked for my opinion or help with problems
   being worked on in the circle.   1 2 3 4 5

6. Quality circles are a waste of time.   1 2 3 4 5

7. I would like to see more circles formed.   1 2 3 4 5

8. The quality of work here has not improved since
   quality circles were started.   1 2 3 4 5

9. The quality circle group was not well trained
   for their task.   1 2 3 4 5

10. Morale has improved with the use of quality circles.   1 2 3 4 5

11. Quality circles will never succeed here because of
    lack of management support.   1 2 3 4 5

12. We are able to get more done since the use of
    quality circles has solved some of our problems.   1 2 3 4 5

13. The department seems more of a team since quality
    circles started.   1 2 3 4 5

Please make any additional comments about quality circles you may have on this page.

Thank you for your help!!

QUALITY CIRCLE SURVEY

Using the scale below, please respond to the following statements
concerning quality circles. Read each statement and then circle a number
to correspond to the scale. There are no right or wrong answers.

1. definitely yes
2. probably yes
3. maybe or neutral
4. probably no
5. definitely no

1.	Work attitudes have improved.	1 2 3 4 5
2.	The quality circle group was not well trained for the task.	1 2 3 4 5
3.	Everyone works together as a team on quality circles.	1 2 3 4 5
4.	Work quality has not improved since the start of quality circles.	1 2 3 4 5
5.	I feel more satisfied in my job since quality circles were started.	1 2 3 4 5
6.	Quality circles are for "looks" only and do not accomplish anything.	1 2 3 4 5
7.	Everyone works together to solve a problem.	1 2 3 4 5
8.	Not all management supports the quality circle concept.	1 2 3 4 5
9.	I believe in participative management.	1 2 3 4 5
10.	Quality circles are a management fad.	1 2 3 4 5
11.	I like the idea of worker input through quality circles.	1 2 3 4 5
12.	Management is better at solving work problems than the worker.	1 2 3 4 5
13.	Quality circles make my job easier since everyone works together for the department.	1 2 3 4 5
14.	Quality circles work well in this foodservice.	1 2 3 4 5
15.	I would not like to see more circles formed.	1 2 3 4 5

OVER

Please make any additional comments about quality circles you may have on this page.

Thank you for your help!!

INTERVIEW QUESTIONS

1. What led to the development of quality circles here?

2. What other departments in the hospital use quality circles?

3. When did the first circle start here?

4. How many circles do you have?

5. How many members per circle?

6. Do circles meet on company time? When and where?

7. Who trained the circle members?

8. What type of continuous training do you use?

9. Do you keep minutes? Who takes the minutes?

10. Who leads the circle meetings?

11. Will more circles be added? When?

12. List of present circle problems and problems that have been solved.

13. Are you a member of American Society of Quality Circles or International Quality Circle Association?

14. Do you determine costs saving by the circle?

15. Any other comments you care to make about quality circles?

APPENDIX C

Responses to Statements about Quality Circles

by Three Groups at Two Hospitals

Table 12. Responses to statements about quality circles by members at two hospitals

	statement	hospital									
		A scale*					B scale*				
		1	2	3	4	5	1	2	3	4	5
		←			%						→
1.	personally satisfying	88	12	-	-	-	26	62	12	-	-
2.	circles a fad	-	-	-	38	62	-	-	12	38	50
3.	like to continue on circle	75	25	-	-	-	62	25	13	-	-
4.	very little change resulted	-	-	12	12	76	-	-	12	-	88
5.	purpose to improve productivity	-	-	50	12	38	-	26	12	-	62
6.	new techniques learned	63	25	12	-	-	38	50	-	12	-
7.	enrich job	62	26	12	-	-	25	75	-	-	-
8.	non-members do not support	-	-	50	25	25	-	25	12	25	38
9.	job more challenging	38	50	12	-	-	26	62	12	-	-
10.	training limited	-	14	-	29	57	13	-	25	62	-
11.	more productive foodservice	-	-	37	37	26	12	-	26	50	12

*Rating scale:
    1. definitely yes
    2. probably yes
    3. maybe or neutral
    4. probably no
    5. definitely no

Table 12. (cont.)

	statement	hospital									
		A scale					B scale				
		1	2	3	4	5	1	2	3	4	5
						%					
12.	add ideas	88	12	–	–	–	50	25	25	–	–
13.	quality not improved	–	12	12	–	76	–	–	12	–	88
14.	share ideas with non-members	38	12	50	–	–	62	38	–	–	–
15.	extra hours not required	25	38	25	12	–	62	12	–	–	26
16.	all equals on circle	88	12	–	–	–	100	–	–	–	–
17.	needs more supportive management	25	26	12	12	25	12	12	26	25	25
18.	work at home on problems	–	–	12	38	50	–	–	12	50	38
19.	function the same as before	–	–	–	38	62	12	–	12	26	50
20.	like more circles formed	62	25	–	13	–	25	50	25	–	–

Table 13. Responses to statements about quality circles by non-members at two hospitals

	statement	hospital									
		A scale*					B scale*				
		1	2	3	4	5	1	2	3	4	5
		%									
1.	like to be member	16	24	34	16	10	12	8	42	11	27
2.	work life better	22	27	32	5	14	4	15	46	12	23
3.	agree with circle idea	39	31	22	3	5	12	19	50	12	7
4.	circles a fad	3	11	24	35	27	4	4	65	19	8
5.	asked for opinion	10	16	14	14	46	8	8	32	20	32
6.	waste of time	8	8	18	26	40	4	13	33	29	21
7.	want more circles formed	27	24	30	16	3	24	12	44	8	12
8.	quality not improved	11	11	42	8	28	8	15	46	12	19
9.	not well trained	3	8	37	29	23	4	12	56	24	4
10.	morale improved	10	32	37	5	16	4	4	52	16	24
11.	lack management support	5	-	27	27	41	8	12	48	24	8
12.	solved problems	22	27	27	8	16	8	8	56	8	20
13.	more of a team	19	27	32	6	16	12	4	36	20	28

*Rating scale:
    1. definitely yes
    2. probably yes
    3. maybe or neutral
    4. probably no
    5. definitely no

Table 14. Responses to statements about quality circles by non-member management at two hospitals

statement	hospital									
	A scale*					B scale*				
	1	2	3	4	5	1	2	3	4	5
	%→									
1. attitudes improved	40	10	20	20	10	12	12	38	38	-
2. not well trained	-	26	50	12	12	-	25	50	-	25
3. works together as a team	50	12	26	-	12	12	38	25	25	-
4. quality not improved	10	20	20	10	40	12	-	76	12	-
5. job satisfaction	10	20	40	30	-	12	12	50	26	-
6. for looks only	11	11	-	22	56	-	38	-	12	50
7. all work together	11	56	11	-	22	25	25	38	-	12
8. lack management support	-	33	45	11	11	37	25	38	25	-
9. support partici-pative management	67	11	-	-	22	63	37	-	-	-
10. a management fad	30	-	10	40	20	-	-	50	38	12
11. worker input	60	10	10	-	20	50	50	-	-	-
12. management better at solving problems	10	10	30	20	30	-	12	50	26	12

*Rating scale:
   1. definitely yes
   2. probably yes
   3. maybe or neutral
   4. probably no
   5. definitely no

Table 14. (cont.)

	statement	hospital									
		A scale					B scale				
		1	2	3	4	5	1	2	3	4	5
		%									
13.	job easier	30	30	10	20	10	12	38	25	13	12
14.	works well in foodservice	44	22	22	-	12	12	12	63	13	-
15.	no more circles formed	22	22	11	11	34	12	25	38	13	12

Table 15. Placement of similar statements* on instruments

statement	members	non-members	management
	←——— statement number on survey ———→		
circles a fad	2	4	10
form more quality circles	20	7	15
work life has changed	4	2	5
quality improvement	13	8	4
work together as a team	-	13	13
trained adequately	10	9	2

*Statements were not identical.

EVALUATING QUALITY CIRCLES IN HOSPITAL FOODSERVICE

by

EDITH JEANETTE JONES

B.S., University of Wisconsin-Stout, 1978

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AN ABSTRACT OF A MASTER'S THESIS

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ABSTRACT

The purpose of this research was to evaluate quality circles in
hospital foodservice and to provide information to assist foodservice
personnel in the implementation or use of quality circles. Foodservice
departments in two acute care hospitals using quality circles were
selected. The research instrument consisted of three surveys: members,
non-members, and management. The preliminary instrument was pilot tested
at Barnes Hospital, St. Louis, Missouri. The final instrument contained a
cover letter, a page of demographic information, and a survey. Quality
circle members, non-members, and management personnel responded to state-
ments about quality circles using a Likert-type rating scale. The
researcher went to the two hospitals, explained the study, and distributed
and collected the questionnaires; any not returned after a second visit
were mailed within a week.

A total of 98 instruments were collected from the two hospitals.
Programs and routines in the Statistical Analysis System (SAS) were used
for data analyses. The demographic information showed respondents of the
study to be primarily female, between the ages of 20 and 39, with the
equivalent of a high school education, employed from two to five years in
the hospital foodservice. The two most common job titles were supervisor
and dietary technician. Circle members viewed quality circles the most
positively with management and non-members being neutral to slightly
positive toward circles. Comments showed that non-members did not fully
understand the purpose of quality circles.

Each of the three surveys contained similar statements about quality circle concepts. Analysis of similar statements showed significant differences (P < .05) between quality circle members and the other groups in responses to the statements. Relationships were found between some responses to statements and demographic factors of age, education, and employment length (P < .05).

Personnel at hospital A was more positive in their responses on all three surveys than personnel at hospital B. This may be attributed to the fact that the quality circle in hospital A had been established for a longer period of time. Also, more extensive training of circle members and inclusion of a wider range of personnel in the circle at hospital A than at hospital B may have influenced the responses. Lack of consistent identification of quality circle techniques by members illustrated a need for improved communication and training. More than half of the quality circle members reported no major problems when working with quality circles. Other members cited lack of fellow worker support and not enough training as areas of concern. Significant differences (P < .05) were found in the ways that non-members view circles between hospital A and B.

The results of this study showed that quality circles can be successful in hospital foodservice. Proper training and good communication are required for circle success. Not only members, but non-members and management must be informed. A large number of non-members indicated an interest in becoming circle members. Stricter adherence to the standards set for quality circles would benefit the foodservices. Management support for the circle is essential.